of the lamellæ is centripetal. 4. That while the starch granule is thus a lamellated vesicle, it cannot be included in the category of the true vegetable cell, from which it differs, not only in the absence of a proper nucleus, but in presenting no chemical difference between membrane and contents.—*Quarterly Journal of Microscopical Science*, April, 1854.

MATERIA MEDICA AND PHARMACY.

8. *Action of Digitalis.*—Dr. H. Bence Jones, in an instructive lecture recently delivered before the Royal College of Surgeons (*Medical Times and Gazette*, April 21, 1855), gives an account of some interesting observations, by Dr. Traube, on the action of digitalis:—

"E. Weber has shown," he observes, "that, when the vagi are undivided, a feeble electric current acting on the medulla oblongata, or on the vagi, causes a diminution of the contractions of the heart.

"Ludwig has proved that, in all mammalia, section of the vagi in the neck is immediately followed by increased frequency of the heart's action.

"We must recognize in the heart two systems of nerves—

"1st. Musculo-motor, causing contraction.

"2d. Regulator system.

"The ganglia of the heart are the centre of the first system, and the medulla oblongata is the centre of the second system. The regulating nerves pass with the vagi. From the experiments of Weber and Ludwig, it follows; 1st. That abnormal gentle stimulus of the regulator-nerves diminishes the frequency of the heart's action; and 2dly. That the frequency is greatly increased by the removal of the regulating action.

"From this it may be concluded, that any substance which, when brought into the circulation in small quantity, diminishes the frequency of contraction, but, in large quantity, increases the frequency, acts on the regulator-nerves. Hence digitalis, from Dr. Traube's experiments: 1st. Stimulates the regulator system of nerves. 2d. Paralyzes the regulators; and when it stops the action of the heart; then, 3dly. It paralyzes the musculo-motor system.

"In small doses, the digitalis acts as a stimulant; in large doses, it acts as a sedative, causing paralysis and death."

Dr. Traube has also made some interesting observations on the reduction of temperature of the body by the action of digitalis. The determination of the animal heat was always made in the axilla, and in twelve cases of acute rheumatism, the rate of the pulse and the temperature of the body were taken with extreme accuracy, morning and evening; half a drachm of the leaves of digitalis were infused in four ounces of water, and every two hours half an ounce of the infusion was given. The result was, that generally the temperature fell at the same time, or shortly after the digitalis produced its effect on the heart. Hence, without doubt, the reduction of temperature was a consequence of the slower current of the blood which was produced by the action of the digitalis on the regulatory system of nerves of the heart.

Careful observation showed that digitalis caused a reduction of the temperature in the most different kinds of febrile complaints. Even in puerperal fever the temperature falls when the digitalis is in action.

Dr. Traube draws the following comparison between bloodletting and digitalis as antiphlogistics. Bleeding, while it lessens the force of the pulse, reduces the specific gravity of the blood, and in low inflammations increases the tendency to serous effusion. Hence, in all low inflammations, digitalis is to be preferred as an antiphlogistic to bleeding. Moreover, the effect of venesection is much more rapid, and much more transitory; in its antiphlogistic action digitalis bears a close resemblance to antimony; but it is far less likely to affect the bowels, and hence, in all inflammatory diseases complicated with any affection of the bowels, digitalis is to be preferred to antimony. The employment of digitalis is, however, accompanied by its own inconveniences and even dangers. It may produce sudden prostration of nervous and muscular action, and even syncope and death; that is, the stimulating action on the regulatory system of nerves may suddenly give place to the paralyzing action. Hence arises the necessity for watching those who are taking this medicine; they should be seen at least twice daily, and if there be sickness, or irregularity in the rhythm of the heart, or great reduction in the rate of the pulse, the medicine must be omitted.

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9. *Source of Sarsaparilla.*—After a careful investigation of the subject, Dr. BERTHOLD SEEMANN has arrived at the conclusion that the greater proportion of sarsaparilla imported under the commercial names of "Jamaica," "Lisbon," or "Brazilian," and "Guatemala," or "Red-Paraguay" sarsaparilla, is the produce of one species only, the *Smilax officinalis* of Humboldt and Bonpland; and further, that the *Smilax medica* of Schlechtendahl and Chamisso, and the *Smilax papyracea* of Poiret, are identical with it. *Smilax officinalis* grows in the lower coast region as well as on the mountains to an elevation of five thousand feet above the sea, and is confined, as far as is known, to the South American continent, between the 20th degree of north latitude and the 6th degree of south latitude, and the 110th and 40th degrees of west longitude. The roots, which form the commercial article, abound more or less in starch, according to the age and the conditions under which they have grown. Dr. Seemann considers the Lisbon sarsaparilla to differ from the Jamaica only in the rootlets having been removed by some mechanical means or other before the article reaches the market. The condition indicated by the chief pharmacological distinction into "mealy" and "non-mealy" samples, he believes to depend on the age of the roots, and on the locality in which they are collected. He admits, however, the value of the commercial distinctions as such; for as long as the Brazilian collectors continue to strip the roots of their beard and put them up in long bundles, there will always be Lisbon sarsaparilla; as long as the inhabitants of the Spanish Main continue to preserve the rootlets, we shall have Jamaica sarsaparilla; and as long as the climate and other physical conditions of Guatemala remain unchanged, we shall continue to receive from that locality sarsaparilla distinguished by its abundance of starchy matter.—*Association Medical Journal*, March 16, 1855, from *Pharmaceutical Journal*, February, 1854.

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10. *Pterocarpus Erinaceus or Kino-Tree of West Africa.*—Dr. W. F. DANIELL being stationed at Macarthy's Island, on the Gambia, availed himself of the opportunity afforded him of investigating the botanical source of African kino, and concludes that it is derived from a tree whose botanical characters corresponded with those of the *Pterocarpus erinaceus;* a specimen of which, brought from central Africa, in 1805, by Mungo Park, is preserved in the British Museum. Though growing on the banks of other streams in Western Africa, it flourishes most exuberantly on the upper banks of the Gambia. Macarthy's Island, prior to its occupation, was thickly covered by this tree. The tree is described and figured.

The gum, when it naturally exudes, is in limited quantities between the crevices of the bark, and cannot be detected on account of the external crust being black, and unless the outer has been purposely abraded or incised, with the view of obtaining a larger amount, is likewise somewhat difficult of collection. The exudation, as it first appears, is of a pale and dirty reddish hue; more copious, and of greater liquidity, if the younger branches or twigs are cut. This gradually darkens in colour in proportion as it becomes exposed to the air; and as exsiccation is effected, assumes a ruby tint, which time deepens more and more. In general, African kino oozes forth in very superficial layers, remarkably friable and brittle, and adheres with such tenacity to the abraded surface that it is almost impossible to procure any quantity without being conjoined with a portion of the woody fibre. Owing to its extreme brittleness, wheresoever the larger masses are fractured, the fragments are necessarily small and pulverulent, inodorous, of an irregular angular form (those from the interior being shining), and of a deep ruby colour ultimately acquiring a